

WHAT IS CLAIMED IS:

1. A method of the production of a nanoparticle which comprises a step of forming a nanoparticle including a compound of a metal ion in a cavity part of a protein, in a solution containing the protein having the cavity part therein, the metal ion, and a carbonate ion and/or a hydrogen carbonate ion.

2. The method of the production of a nanoparticle according to claim 1, wherein said compound is a hydroxide.

3. The method of the production of a nanoparticle according to claim 2, wherein said metal ion is any one of a nickel ion ( $\text{Ni}^{2+}$ ), a chromium ion ( $\text{Cr}^{2+}$ ) or a copper ion ( $\text{Cu}^{2+}$ ).

4. The method of the production of a nanoparticle according to claim 3, wherein said metal ion is a nickel ion.

5. The method of the production of a nanoparticle according to claim 3, wherein said metal ion is a chromium ion.

6. The method of the production of a nanoparticle according to claim 3, wherein said metal ion is a copper ion.

7. The method of the production of a nanoparticle according to claim 2, wherein pH of said solution is approximately equal to a precipitation point of a hydroxide of said metal ion.

8. The method of the production of a nanoparticle according to claim 4, wherein pH of said solution is 8 or greater and 9 or less.

9. The method of the production of a nanoparticle according to claim 4, wherein said solution further comprises an ammonium ion.

10. The method of the production of a nanoparticle according to claim 9, wherein pH of said solution is greater than 8.3 and equal to or less than 8.65.

11. The method of the production of a nanoparticle according to claim 1, wherein said protein is at least one of apoferritin, Dps protein, CCMV protein, TMV protein or a heat shock protein.

12. The method of the production of a nanoparticle according to claim 1, wherein said solution comprises a carbonate ion and/or a hydrogen carbonate ion produced by bubbling carbon dioxide thereto.

13. The method of the production of a nanoparticle according to claim 1 further comprise a step of eliminating the protein by a heat treatment after forming said nanoparticle.

14. A nanoparticle including a compound of a metal ion, which is formed in a cavity part of a protein, in a solution containing the protein having the cavity part therein, the metal ion, and a carbonate ion and/or a hydrogen carbonate ion.

15. A complex comprising a protein having a cavity part therein, and a nanoparticle formed in the cavity part of the protein; the nanoparticle being a nanoparticle comprising a

compound of a metal ion, which is formed in the cavity part of the protein, in a solution containing the protein, the metal ion, and a carbonate ion and/or a hydrogen carbonate ion.